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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,024	05/03/2001	Scot Stewart	74-HA-4010/7842	6441

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EXAMINER
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LE, LANA N

ART UNIT	PAPER NUMBER
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2685

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DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/848,024

Applicant(s)

STEWART, SCOT

Examiner

Lana Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 May 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,4,5,10 and 12-17 is/are rejected.  
7) ☒ Claim(s) 2,3,6-8 and 11 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (US 5,548,835) in view of Dienes (US 6,091,372) and further in view of the admitted prior art.

Regarding claim 1, Sasaki discloses a data transmission system for off-board communications to and from a railroad train comprising:

a radio to which a signal for reception from the receiving site is supplied by the central processing unit, the radio operating within a specified frequency range;

at least two antennas to each of which a reception signal produced by the radio unit is received by the antennas; and, the central processing unit selecting which of the antennas over which the reception signal is received at any one time.

Sasaki didn't specifically disclose:

the at least two antennas to each of which a transmission signal produced by the radio is sent for broadcasting by the antennas to a receiver located at the receiving site.

Dienes discloses the at least two antennas 14 to each of which a transmission signal produced by the radio is sent for broadcasting by the antennas to a receiver

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located at the receiving site (fig. 1; col 7, lines 40-59). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have diversified transmitting antennae in order to allow the train terminal to transmit the train condition to the control station.

However, the cited prior art didn't further disclose: a radio to which a signal for transmission to the receiving site is supplied by the central processing unit, the radio operating within a specified frequency range; a central processing unit to which information relating to operation of the train is received and formatted for transmission to a receiving site remote from the train.

The admitted prior art discloses: a radio 34 to which a signal for transmission to the receiving site is supplied by the central processing unit, the radio operating within a specified frequency range; a central processing unit 32 to which information relating to operation of the train is received and formatted for transmission to a receiving site remote from the train. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a CPU to process the received information and to relay it to a receiving control station.

Regarding claim 4, Sasaki, Dienes, and the admitted prior art discloses the data transmission system of claim 1 wherein Sasaki discloses the system further including a performance/availability checker 324 (fig. 7).

2. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swensen et al (US 5,420,883) in view of Sasaki (US 5,548,835).

Regarding claim 5, Swensen et al discloses a data transmission system for terminal diversity for off-board railway communications from a railroad train comprising: first and second radios each operating within a specified frequency range (col 5, lines 53-60);

a separate antenna connected to each radio and through which a transmission signal is separately transmitted to a receiving site or received from the site (col 6, lines 30-34);

at least two receivers 76, 78 located at the receiving site for receiving signals broadcast transmitted through the respective antennas (col 5, lines 55-61).

a recombining unit 60 for combining the transmissions received by each receiver so to produce a complete signal transmission; and a controller for controlling the selection of antennas for communication (col 6, lines 15-29).

However, the cited prior art fails to further disclose: a controller for controlling the selection of antennas for communication.

Sasaki discloses a controller 123 for controlling the selection of antennas for communication (col 3, lines 40-56; fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to select the antennas in order to carry out antenna diversity for simultaneous transmission/reception of data signals.

Regarding claim 9, Swensen and Sasaki discloses the data transmission system of claim 5 wherein Sasaki further disclose the system further comprising a performance/availability checker 324 (fig. 7).

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3. Claims 10, 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swensen et al (US 5,420,883) in view of admitted prior art.

Regarding claim 10, Swensen et al discloses a data transmission system for terminal diversity for off-board railway communications from a railroad train comprising:

first and second radios to which an output signal from an inherent processing unit is directed (col 5, lines 53-55);

a first directional antenna to which a transmission signal from one of the radios is directed for broadcasting the transmission signal to the receiving site (col 5, lines 53-55; col 6, lines 30-39);

a second directional antenna to which a transmission signal from the other radio is directed for broadcasting the transmission signal to the receiving site (col 5, lines 53-55; col 6, lines 30-39);

first and second receivers located at the receiving site for receiving the broadcast transmission signals (col 5, lines 55-61);

a recombining unit 60 for combining the transmissions received by each receiver so to produce a complete signal transmission; and wherein the central processing unit selects which of the antennas over which a transmission signal is broadcast at any one time.

However, the cited prior art fails to further disclose:

a central processing unit to which information relating to operation of the train is received and formatted for transmission to a receiving site.

The admitted prior art discloses a central processing unit 32 to which information relating to operation of the train is received and formatted for transmission to a receiving site. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a CPU of the train to process the received signal and to produce a transmitted signal in order to receive the commands from the control station and adjust the train system and send the acknowledgement back to the control center.

Regarding claim 12, Swensen and the admitted prior art discloses the data transmission system of claim 10 wherein they didn't specifically disclose the frequency at which a signal is broadcast from one of the antennas is different from the frequency at which the signal is broadcast from the second antenna. However, it is well known in the art that each different antenna from each transceiver utilize a different frequency to transmit a signal. It would have been obvious to one of ordinary skill in the art at the time of the invention was made for the other radio to use different frequencies to avoid signal interference.

Regarding claim 13, Swensen and the admitted prior art discloses the data transmission system of claim 12 wherein the cited prior art didn't further disclose the signal provided from one of the radios for transmission by its associated antenna has a modulation different from that of the signal provided by the other radio for transmission by its associated antenna. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made for the other radio to use a different modulation in order to blend data into distinct carrier signals for transmission.

Regarding claim 14, Swensen and the admitted prior art discloses the data transmission system of claim 13 wherein the cited prior art didn't further disclose the signal provided from one of the radios for transmission by its associated antenna has a broadcast protocol different from that of the signal provided by the other radio for transmission by its associated antenna. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made for the other radio to use a different broadcast protocol in order to have a unique data transmission format between the specific sending transceiver and the receiving transceiver.

Regarding claim 15, Swensen and the admitted prior art discloses the data transmission system of claim 10 wherein Swensen further discloses the system comprising a performance/availability checker (col 5, lines 9-41).

Regarding claim 16, Swensen and the admitted prior art discloses the data transmission system of claim 10 Swensen further discloses the system comprising additional antennas on the at least two radios for broadcasting a transmission signal to a selected receiver (col 5, lines 53-60).

Regarding claim 17, Swensen and the admitted prior art discloses the data transmission system of claim 16 wherein the cited prior art didn't further specifically disclose each signal being broadcast by one of the antennas is of a different frequency, modulation, and broadcast protocol than a signal broadcast from one of the other antennas. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made for the other radio to use a different broadcast protocol, frequency, and modulation in order to have a unique data transmission format between

the specific sending transceiver and the receiving transceiver, a non-interfering frequency, and distinct carrier signals for transmission.

***Allowable Subject Matter***

4. Claims 2-3, 6-8, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, Sasaki, Dienes, and the admitted prior art discloses the data transmission system of claim 1, the cited prior art didn't further disclose the system further including a signal splitter by which a transmission signal produced by the radio is divided, the signal splitter supplying transmission signals to each of the antennas for transmission thereby to the receiving site on a selective basis which is a function of signal magnitude and phase weighting whereby the transmission signal is broadcast by the antennas.

Regarding claim 3, the cited prior art didn't further disclose the data transmission system of claim 2 wherein the supply of a transmission signal by the signal splitter to the

antennas is controlled by the central processing unit as a function of the signal magnitude and phase weighting.

Regarding claim 6, Sasaki, Dienes, and the admitted prior art discloses the data transmission system of claim 5 wherein the cited prior art didn't further disclose the controller includes a central processing unit to which information relating to operation of the train is received and formatted for transmission to the receiving site; and a signal divider for splitting an output signal from the central processing unit and supplying the signal to each radio.

Regarding claim 7, the cited prior art didn't further disclose the data transmission system of claim 6 wherein the signal divider is a multiplexer.

Regarding claim 8, the cited prior art didn't further disclose the data transmission system of claim 6 wherein the transmission signal broadcast from one antenna is different from the transmission signal broadcast from the other antenna.

Regarding claim 11, Swensen and the admitted prior art discloses the data transmission system of claim 10 wherein the cited prior art didn't further disclose the system further comprising a signal divider to which an output signal from the central processing unit is directed, the signal divider splitting the output signal and separately providing it to each of the radios.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.

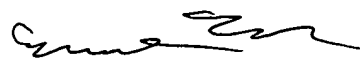
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lana Le

March 17, 2004



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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2008